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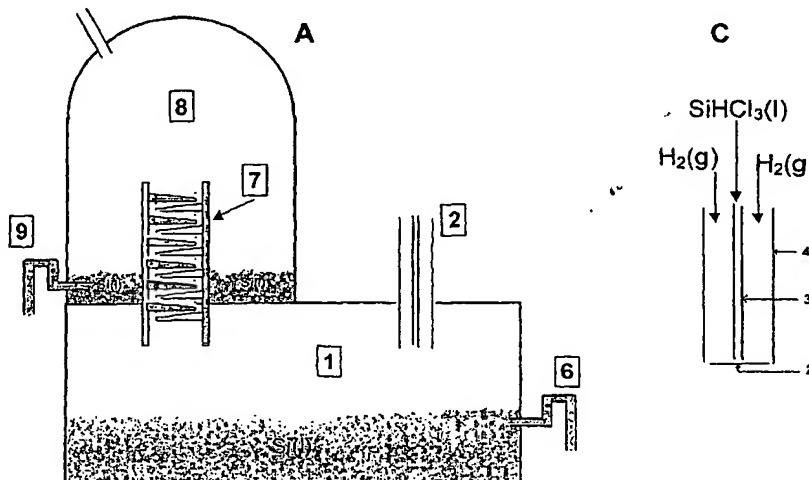
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- (71) Applicant (for all designated States except US): SØR-LANDETS TEKNOLOGISENTER AS [NO/NO];  
Televeien 3, N-4879 Grimstad (NO).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): EGEBERG, Per, Kristian [NO/NO]; Bliksheia 47, N-4637 Kristiansand (NO).
- (74) Agent: OSLO PATENTKONTOR AS; Postboks 7007M, N-0306 Oslo (NO).
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(54) Title: PRODUCTION OF HIGH GRADE SILICON, REACTOR, PARTICLE RECAPTURE TOWER AND USE OF THE AFOREMENTIONED



(57) **Abstract:** Solar Grade Silicon is produced by decomposition of a silicon precursor, preferably trichlorosilane, in the presence of an excess of hydrogen gas, where the reactant is introduced in a reaction chamber (1) whose lower portion is held at a temperature above the melting point of silicon and whose upper portion is held at ambient temperatures. The method is distinguished by the introduction of trichlorosilane through a feed pipe (3) which is arranged coaxially inside an outer pipe (4) for introducing hydrogen gas that functions as a cooling medium for the introduced fluid trichlorosilane. The silicon formed is collected in the lower portion of the reactor (1) and removed through an outlet (6). Excess hydrogen and hydrogen chloride is withdrawn through an outlet (5) and can, after purification, be used as reactants in the essentially closed system for the production of pure silicon from low grade silicon. Silicon particles in the off gases can be separated, melted and recycled using a particle recapture tower.